

REMARKS

Reconsideration of the present application is respectfully requested in view of the following remarks. Prior to entry of this response, Claims 20-38 were pending in the application, of which Claims 20, 35, and 36 are independent. Claims 36-38 have been previously withdrawn from consideration. In the Office Action dated July 1, 2003, Claims 20-23, 27, and 35 were rejected under 35 U.S.C. §102(e), Claims 24-26 were rejected under 35 U.S.C. §103(a), and Claims 28-34 were objected to, but were deemed allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Following this response, Claims 20-35 remain under consideration in this application. Applicants hereby address the Examiner's rejections in turn.

I. Rejection of the Claims Under 35 U.S.C. § 102(e)

In the Office Action dated July 1, 2003, the Examiner rejected Claims 20-23, 27, and 35 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,262,375 ("*Engelhardt*"). Applicants respectfully traverse this rejection because *Engelhardt* does not disclose the claimed invention. Claims 20 and 35 have been amended to place them in better form for consideration, and Applicants respectfully submit that the amendments do not narrow the scope of Claims 20 and 35 or add new matter.

Amended Claim 20 is patentably distinguishable over the cited art in that it recites, for example, a superconducting cable having at least one phase comprising a layer of tapes comprising superconducting material, a tubular element for supporting said layer of tapes, said tubular element comprising at least one portion made of

metallic material and being in electrical contact with the layer of tapes, a cooling circuit configured to cool the layer of tapes to a working temperature not higher than its critical temperature, the cooling circuit comprising a fluid at a predetermined working pressure ranging between a minimum value and a maximum value wherein deformation of the layer of tapes consequent to a temperature variation between room temperature and the working temperature is lower than critical deformation of the layer of tapes, and a predetermined amount of conductive material of resistive type in electrical contact with the layer of tapes configured to cause a maximum temperature reached by the layer of tapes in case of a short circuit to be lower than the lesser of the critical temperature of the superconducting material comprising the layer of tapes and the boiling temperature of said cooling fluid at a minimum working pressure of said fluid.

Furthermore, amended Claim 35 is patentably distinguishable over the cited art in that it recites, for example, a conductive element for superconducting cables comprising at least one layer of superconducting material incorporated within a metallic coating supported by a tubular element comprising a predetermined amount of metallic material with which the layer is in electrical contact, said layer of superconducting material being cooled by means of a cooling fluid to a temperature not higher than the **cooling fluid's** critical temperature, wherein a predetermined amount of conducting material of resistive type is present in electrical contact with the layer of superconducting material, such that a maximum temperature reached by the at least one layer of superconducting material in case of short circuit is lower than the lesser of the critical temperature of the at least one layer of superconducting material and the boiling temperature of said cooling fluid at a minimum working pressure of said fluid.

In contrast, *Engelhardt* at least does not disclose or suggest a superconducting cable having both a tubular element and a predetermined amount of conductive material. Rather, in *Engelhardt*, a support tube itself, acting as a backup current conductor, allegedly prevents damage to the superconductor due to excessive heating. For example, *Engelhardt* discloses that, during a short circuit, when the resistance of the superconductor increases above that of a tube 110, the large current flows through tube 110, instead of the superconductor, since tube 110 has a lower resistance. (See Col. 5, lines 13-16.) In *Engelhardt*, tube 110, acting as a backup current conductor, prevents damage to the superconductor due to excessive heating. (See Col. 5, lines 16-18.)

Consequently, a predetermined amount of conductive material separate from the support tube is not disclosed or suggested by *Engelhardt*, much less a predetermined amount of conductive material of resistive type in electrical contact with the layer of tapes configured to cause a maximum temperature reached by the layer of tapes in case of a short circuit to be lower than the lesser of the critical temperature of the superconducting material and the boiling temperature of the cooling fluid.

In short, *Engelhardt* at least does not disclose or suggest a predetermined amount of conductive material of resistive type in electrical contact with the layer of tapes configured to cause a maximum temperature reached by the layer of tapes in case of a short circuit to be lower than the lesser of the critical temperature of the superconducting material comprising the layer of tapes and the boiling temperature of said cooling fluid at a minimum working pressure of said fluid, as recited by amended Claim 20. Similarly, *Engelhardt* at least does not disclose or suggest that a

predetermined amount of conducting material of resistive type is present in electrical contact with the layer of superconducting material, such that a maximum temperature reached by the at least one layer of superconducting material in case of short circuit is lower than the lesser of the critical temperature of the at least one layer of superconducting material and the boiling temperature of said cooling fluid at a minimum working pressure of said fluid, as recited by amended Claim 35. Accordingly, independent Claims 20 and 35 patentably distinguish the present invention over the cited art, and Applicants respectfully request withdrawal of the rejection of Claims 20 and 35.

Dependent Claims 21-34 are also allowable at least for the reasons above regarding independent Claim 20, and by virtue of their dependency upon independent Claim 20. Accordingly, Applicants respectfully request withdrawal of the rejection of dependent Claims 21-27 and the objection to dependent claims 28-34.

II. Conclusion

In view of the foregoing remarks, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims. The preceding arguments are based only on the arguments in the Office Action, and therefore do not address patentable aspects of the invention that were not addressed by the Examiner in the Office Action. The claims may include other elements that are not shown, taught, or suggested by the cited art. Accordingly, the preceding argument in favor of patentability is advanced without prejudice to other bases of patentability.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: August 15, 2003

By: 

D. Kent Stier
Reg. No. 50,640
(404) 653-6559

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com